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Specification and Drawing, as originally filed, with Application for Patent Serial No:
2,257,428, on December 29, 1998, by MARK VAN ROON, DAVID ING, (CO-
APPLICANT AND CO-INVENTOR), JOHN BOOTH AND PETER LANGLEY, for
"Computer Based Matching System for Buyers and Sellers".

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Abstract**Computer Based Matching System for Buyers and Sellers**

A computer based system is disclosed which enables a buyer and a seller to be efficiently matched. The system comprises a first computer terminal into which the buyer inputs details of a potential purchase transaction, a second computer terminal into which the seller inputs details of a potential sales transaction, a computer network connecting the first and second terminals; and is characterised in there being a computer program arranged to calculate the mid-point between a selling price established by reference to data substantially independent of the buyer and the seller and a purchase price established by reference to data substantially independent of the buyer and the seller and to complete the transaction between the buyer and the seller at the mid-point.

Computer Based Matching System for Buyers and Sellers

5 Field of the Invention

This invention relates to a computer based system which enables buyers and sellers to be efficiently matched, and in particular to an Internet based system which enables buyers and sellers to be efficiently matched.

10 Description of the prior art

The Internet offers the promise of allowing buyers and sellers of goods and services to communicate directly with one another, eliminating the need for some of the intermediaries and the associated economic inefficiencies present in conventional selling. Hence, for example, it is in 1998 possible to transact many kinds of
15 business using the Internet, which formerly would have required a broker or agent. Examples include the purchase of insurance, airline tickets, books and holidays. The Internet also enables new models of buying and selling as well: for example, there are now many Internet auction sites, on which a wide range of goods and services are auctioned to the highest bidder, with the seller merely setting a reserve
20 price or a bid start price. The terms to 'buy' and 'sell' and related expressions should be broadly construed to include any kind of transfer of rights or interests; 'buyers' and 'sellers' should be also broadly construed to include any transferree and transferror of any kind of right or interest.

25 Computer systems linking many potential buyers and sellers of goods and services over an extensive computer network also existed prior to the widespread adoption of the Internet, particularly in the financial services sector. One example is the foreign exchange dealing systems developed and run by organisations such as Reuters plc and the EBS Partnership. In these systems, banks post the prices at

which they are willing to buy or sell defined quantities of currencies. The systems automatically spot matches - i.e. where a buyer is willing to buy at a price at which a seller is willing to sell - and completes the trade. If a potential buyer of currency can find no-one willing to sell at a price it considers low enough, then typically, that potential buyer will simply have to either wait for the pricing in the market to become more favourable, or else be prepared to pay more. Such systems are commonly used for currency speculation, namely taking a trading position with respect to one or more given currencies to exploit favourable pricing movements.

In addition to the need for speculative currency trading, there exists also a very substantial need for corporations to buy and sell foreign currency, for example, to pay overseas suppliers. Similarly, individuals travelling abroad or making foreign investments need to obtain foreign currencies as well. Currently, corporations and individuals will approach a bank or foreign currency vendor (such as American Express Inc.) to obtain foreign currency. The bank or foreign currency vendor will in turn often have obtained its stocks of foreign currency from other banks, in many cases having used an inter-bank trading system such as the Reuters or EBS systems. Because of the chain of intermediaries, the transaction cost of buying or selling foreign exchange in this way is quite high: this is reflected in the difference between the bid and the offer prices: a bank will typically sell foreign currency at a rate considerably higher than the rate at which it will buy it back. For small transactions, the difference can be 4%. For larger transactions, the difference is typically 5 basis points.

Statement of the Present Invention

5 In accordance with a first aspect of the present invention, there is provided a computer based system which enables a buyer and a seller to be efficiently matched, comprising a first computer terminal into which the buyer inputs details of a potential purchase transaction, a second computer terminal into which the seller inputs details of a potential sales transaction, a computer network connecting the first and second terminals; characterised in there being a computer program arranged to calculate the mid-point between a selling price established by reference to data substantially independent of the buyer and the seller and a purchase price established by reference to data substantially independent of the buyer and the seller and to complete the transaction between the buyer and the seller at the mid-point.

15 By arranging for trades to be made at the mid-point defined by reference to selling and purchase prices determined independently of the buyer and seller, the system automatically matches buyers and sellers in a manner which is both efficient and fair. Speculation and the taking of trading positions, which are defining characteristics of conventional computer based systems for buying and selling products such as foreign exchange, are therefore wholly absent from the present invention.

20 The Internet may comprise some of the network connecting the first and second terminals.

25 In one embodiment, it is the sale or transfer of financial property, such as foreign exchange, treasury bills, and stocks and shares which is matched as between buyers and sellers. The term 'financial property' is used in this patent specification to

embrace any and all financial products which are traded by financial institutions, and therefore includes, without limitation, derivatives, options, debentures, bonds as well as the foreign exchange, treasury bills, and stocks and shares referred to above.

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For foreign exchange, the mid-point is determined as the mid-point of the Interbank Bid/Offer (B/O) Spread at a pre-defined point in time. Hence, the price is not negotiable as in a dealing system with posted desired rates. Parties instead accept the midpoint of the posted interbank spread as the most desirable position to exchange their currency since it affords them the greatest quantity of counter-currency at any given point in time - assuming and to the extent they can be matched.

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In the event that no match can be found, either no deal is done or a deal is done along a default Interbank system at the appropriate bid or offer (depending which way around they are) point.

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Because this system facilitates the direct matching of counterparties, the elimination of settlement risk is a potential advantage. Where this advantage is realised, settlement, to the extent there are no balance sheet variations, can occur within minutes or faster.

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In another embodiment, the system handles the sale of contractual rights; and in a further embodiment, the sale of tangible property.

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In a second aspect of the present invention, there is provided a computer based system which enables a buyer and a seller of financial property to be efficiently

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matched, comprising a first computer terminal into which the buyer inputs details of a potential purchase transaction, a second computer terminal into which the seller inputs details of a potential sales transaction, and a computer network connecting the first and second terminals; characterised in that both the seller and the buyer is either a corporation which is not a financial institution or is an individual.

Conventionally, corporate or individual buyers and sellers of financial property have necessarily traded in financial property using the intermediary of a financial institution. As noted above, the presence of such intermediaries results in additional cost burdens being placed on corporate or individual buyers and sellers, which is economically inefficient. Those inefficiencies are eliminated with direct trading of financial property as envisaged in the present invention between corporate or individual buyers and sellers.

In a third aspect of the present invention, there is provided a computer terminal participating in a computer based system which enables a buyer and a seller of financial property to be efficiently matched, wherein the computer terminal is a first computer terminal into which the buyer inputs details of a potential purchase transaction and which receives confirmation of a matching trade calculated to be at the mid-point between a purchase price and a selling price, each established by reference to data substantially independent of the buyer and the seller.

Hence, if the first terminal is physically within the jurisdiction of Country A, then the location of the seller is irrelevant to the issue of infringement of this third aspect.

Similarly, in a forth aspect of the present invention, there is provided a computer terminal participating in a computer based system which enables a buyer and a seller of financial property to be efficiently matched, wherein the computer terminal is a second computer terminal into which a seller inputs details of a potential sale transaction and which receives confirmation of a matching trade calculated to be at the mid-point between a sale price and a purchase price, each established by reference to data substantially independent of the seller and the buyer. Hence, if the second terminal is physically within the jurisdiction of Country A, then the location of the buyer is irrelevant to the issue of infringement of this forth aspect.

Brief Description of the Figures

The invention will be described in more detail with reference to Figure 1, which is a schematic depiction of a computer based system according to this invention which enables buyers and sellers to be efficiently matched.

Detailed Description

Currently, banks broker foreign exchange transactions, providing an intermediary to purchase and sell currency for both theirs' and their clients' accounts. For each transaction the bank garners the "spread", typically 5 basis points on large transactions and up to 4% on smaller transactions.

In the present invention, the appropriate underlying transactional software allows one end user of the foreign exchange (e.g. a first corporation, Corporation A, doing a cross border procurement) to liaise directly with a counterparty, a second

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corporation, Corporation B, which requires the home currency of Corporation A. The bank brokering function can be eliminated: that is, the spread currently absorbed by the two sample corporations would be negated. Each party would therefore improve their cash position by 2.5 basis points. For smaller customers the savings would be even greater.

Moreover, transactions could be executed in a multitude of dimensions: two way; three way; four way; etc, since the software would expose the transactional opportunities available to each of the clients.

Sample problem

Imagine the following:

1. That the spot price of CDN\$ is US\$ 1.5363 - 1.5368 at November 27/98.
2. That Corporation A is buying US \$1M to purchase equipment at a cost of CDN \$1,536,800.00. Corporation A. has CDN \$1,536,800.00 on account with a bank for the transaction (note: this assumes that the bank provides the best rate to Corporation A).
3. That Corporation B Has US\$1M on account with the bank but requires CDN\$1,536,300.00 to purchase raw materials.

If the bank matches its own funds to supply Corporation A with US\$1M and Corporation B with Cdn\$1,536,300.00, then it makes a profit of \$500.00 per \$million transacted. Although \$500 is a very small amount in the context of a significant \$1M transaction, the total global volume of such transactions is extremely large, so that the cumulative profits to banks are very substantial.

In the present invention, the following occurs: By matching Corporation A with Corporation B, each of their positions is improved by \$250.00 per million, less a

transaction fee to an intermediary of perhaps \$50.00. The result is that Corporation A receives US\$1M for \$1,536,575 per million; a saving of \$225.00 per million; Corporation B Receives \$1,536,525 for US\$1M; an improvement in profit of \$225.00. The system has in effect reduced the spread to 1/2 of 1 basis point. The spread can theoretically be reduced to just short of zero since the present invention operates efficiently.

Clearing transactions

In a preferred embodiment, there is a Central Depository; namely a single bank or trustee which can secure all transactions. It may be structured like the Canadian Deposit Securities (CDS) Corp.

An account held with this Central Depository serves nothing but a transactional purpose through which funds are matched and distributed. The Central Depository accepts funds on account in the currency by which they were deposited. Correspondingly, this institution delivers funds to the customer in the transacted currency at the prescribed rate of exchange. All currency exchange is electronic so that no physical securities are required for clearing.

Software requirements

In a preferred embodiment:

1. Available funds would be "posted" for all customers via the various products (see #5 below);
2. Matching software will automatically expose various exchange/barter opportunities, based on current updated exchange rates. For example, if a customer wishes to convert US\$1M to French francs, a drop down window provides all available funds both directly and via multi-party transactions;

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3. An e-mail facility is also provided to the Central Depository. E-mail messages will confirm that a transaction has been executed by one or other party. An e-mail message from the Central Depository will finalize the "match".

4. Posted funds and "target" exchange rates can also be included in the software: for example that Corporation ABC has US\$1M available to sell for CDN\$ at 1.5365.

5. A product for individuals such as business travellers is available; as is a corporate wholesale product for intermediary exchange requirements; and a "market" product for blue-chip multinationals. The transaction size dictates the number of basis points transactions. "fee" for executing a currency match; automatically, the program slots the trade into the appropriate product with the appropriate rate scale.

6. A hedging facility for foreign exchange exposure may also be included. Assume Corporation ABC has US\$3M at spot and wishes to hedge for days/weeks/ months to protect their capital and provide a return equivalent to desired money market rates. The system is flexible enough to allow forward hedging in a covered position (i.e. Corporation ABC owns US\$1M and wishes to sell in 3 months time to Corporation DEF at \$1.5368. to Corporation DEF is collateralized (CDN \$1,536,800 is on account) to ensure the transaction will be executed. All positions are net flat, insofar as exposure is concerned. The clearing bank ensures that all positions are covered and may hold forward funds in trust in an interest-bearing note.

7. Exposure positions are available to the Central Depository to ensure that there is no speculation within this product.

8. The software must account for global time. Delivery and settlement are adjusted for time differences.

Further uses of the system

1. For the retail individual, an affiliation between the present system and a courier and traveller cheque company is possible. This enables a transaction to be completed anywhere in world with the traveller's cheque couriered directly to the individual. This is envisaged as a premium service all via the Internet.
2. For the retail customer interested in the money markets, cross border retail borrowing and lending to procure best interest rates, the system may for example offer mortgage money with direct matching from cross border sources.
3. For the corporation, the system can provide "instant" cross-border settlement of accounts, converted to the currency of choice, at exchange rates that represent the closest to fully efficient currency markets. Currently settlement is in two days, in which there is inherent credit (settlement) risk.

The present system may be further understood with reference to Figure 1, which shows a schematic of a foreign exchange matching system in accordance with the present invention. The functions of the major blocks in Figure 1 are as follows:

A - represents Buyers and Sellers, who complete registration with a Financial Institution; a Pin Number is required to transact exchange; Individual Pin Numbers are available for multiple users in one company; A can represent one or more customers in the matching software framework.

B - represents the Front End - provides IntraNet Access; Registration with Software Transactions Company.

C. Transaction Page (and supporting information) - Indicates the funds required/available; the desired conversion if applicable. Availability of Data from FX feed.

5 D. - represents the Matching Software - Matrices matching buyers and sellers in two-way, three-way, four-way, five-way transactions for each currency. There are three Products - Retail, Corporate, and BlueChip. The transactions fees are a percentage of volume of match (small volumes as a rule pay a greater percentage to complete the match than do larger volumes). There is an Email to Clearing Corp
10 regarding each transaction; an Accept Email from Financial Institution confirming each transaction; Email to buyers and sellers to confirm transactions; Synthesis of data feed to provide current FX prices. There is an algorithm to bundle quantities & execute transactions as opportunities become available.

15 E. - represents the Clearing Corporation - Accept Email from Matching Software of potential transaction; Email to F/I - INS Funds; Receives Email from F/I confirming Funds Transfer; Records Parties, Volumes, Currencies, Accounts, Posting Instructions.

20 F. - represents the Financial Institution - Confirm accounts, INS Funds, execute transfers, lock-in deposits when counter-parties matched; Email Clearing Corp re. Transaction Details; Email Software to formally post funds transfers

25 Further Sample transaction

1. Corporation ABC has US\$1M which, on his Transaction Page, he posts is available for conversion to Deutchmarks.

2. A German corporation has a US\$ requirement. It sees that US\$1M has been posted.
3. Both corporations hold accounts with the Central Depository. And there are available funds "on account" with financial institutions.
- 5 4. Assume that the German corporation emails the Matching Software to accept the transaction with Corporation ABC (this 'acceptance' constituting the input of the potential purchase transaction as required by at least Claim 1 of the present invention).
- 10 5. The Central Depository examines the exposure position of both parties to ensure that all positions are collateralized.
6. The currency match and exchange occurs via the f/i.
7. The Central Depository emails to the Matching Software; the Matching Software emails counterparty Corporation ABC re. the acceptance of the "match" and the availability of funds.
- 15 8. The Central Depository emails the German Corporation re the availability of converted funds.
9. The transaction is complete.

Claims

- 5 1. A computer based system which enables a buyer and a seller to be efficiently matched, comprising a first computer terminal into which the buyer inputs details of a potential purchase transaction, a second computer terminal into which the seller inputs details of a potential sales transaction, a computer network connecting the first and second terminals; characterised in there being a computer program arranged to calculate the mid-point between a selling price established by reference to data substantially independent of the buyer and the seller and a purchase price established by reference to data substantially independent of the buyer and the seller and to complete the transaction between the buyer and the seller at the mid-point.
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2. The system of Claim 1 in which the Internet forms part of the computer network.
- 20 3. The system of Claim 1 or Claim 2 in which the buyer is a buyer of foreign exchange and the mid-point is determined as the mid-point of the Interbank Bid/Offer (B/O) Spread at a pre-defined point in time.
- 25 4. A computer based system which enables a buyer and a seller of financial property to be efficiently matched, comprising a first computer terminal into which the buyer inputs details of a potential purchase transaction, a second computer terminal into which the seller inputs details

of a potential sales transaction, and a computer network connecting the first and second terminals; characterised in that both the seller and the buyer is either a corporation which is not a financial institution or is an individual.

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5. A computer terminal participating in a computer based system which enables a buyer and a seller of financial property to be efficiently matched, wherein the computer terminal is a first computer terminal into which the buyer inputs details of a potential purchase transaction and which receives confirmation of a matching trade calculated to be at the mid-point between a purchase price and a selling price, each established by reference to data substantially independent of the buyer and the seller.

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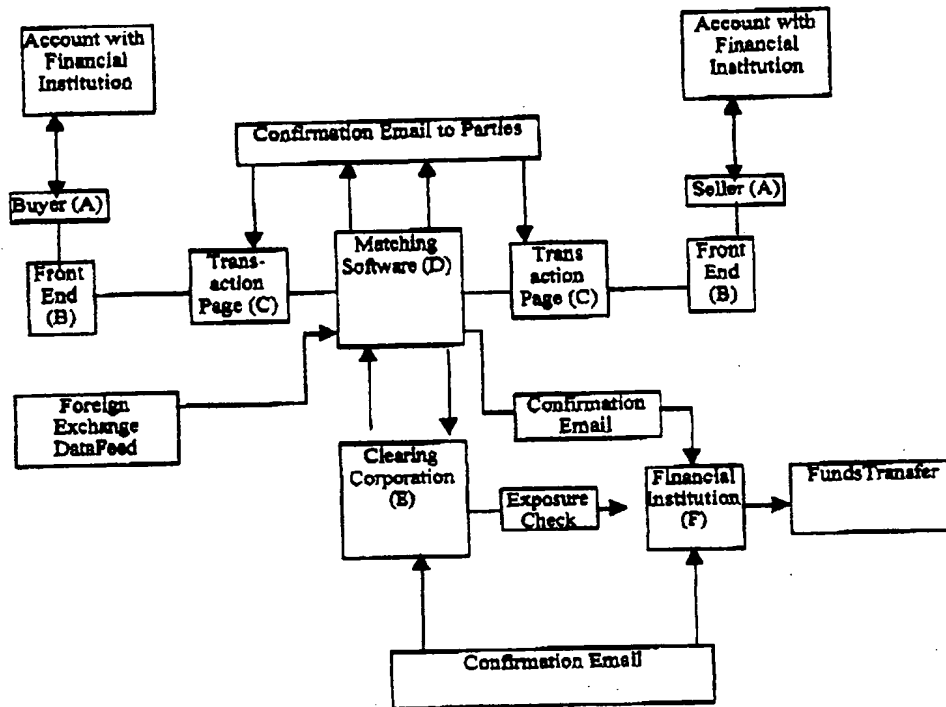
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6. A computer terminal participating in a computer based system which enables a buyer and a seller of financial property to be efficiently matched, wherein the computer terminal is a second computer terminal into which a seller inputs details of a potential sale transaction and which receives confirmation of a matching trade calculated to be at the mid-point between a sale price and a purchase price, each established by reference to data substantially independent of the seller and the buyer.

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Figure 1

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